

2012

R8 Series User Manual



Forwell Wireless Ltd.

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CHAPTER 1 INSTRUCTION MANUAL INTRODUCTION

This chapter is about the related operation information of the R8 Routers. It is the best instruction manual for installing and using R8 series.

1. *Purpose*
2. *Application Fields*
3. *Version Information*
4. *Technical Support*

1.1 PURPOSE

This Instruction Manual is mainly for the installation and test of the R8 series of Forwell Wireless.

1.2 APPLICATION FIELDS

This Instruction Manual is suitable for the users who has certain knowledge of computer network and electronic technology, network device administrators and other management personnel who need to use R8 series.

1.3 VERSION INFORMATION

According to the requirement of the market and the users, we will make some functional adjustment and technical improvement to the R8 series. Below table

includes all the versions of the R8 series of Forwell Wireless and revision reasons in different periods.

Table-1.1: Version Information

Version No.	Revision Department	Related Department	Start-stop Date	Revised Content
1.0.0	R&D Center	Sales, Technical Engineer	2010.12	First publish
2.0.0	R&D Center	Sales, Technical Engineer	2011.1	Add the product function and make adjustments to the hardware
2.1.1	R&D Center	Sales, Technical Engineer	2011.3	
2.1.2	R&D Center	Technical	2013.5.10	3.7.12.5
3.0.0	R&D Center	Technical	2014.9.10	3.8.7.4

1.4 TECHNICAL SUPPORT

In order to solve the problems in the Router use more quickly and get the right solution in hardware, operation system and installation and test. Please contact us by:

☎ Tel:

Service Hot-line: 0755-26621490

✉ E-mail:

Technical Support: xiegang@forwellwireless.com

For more information, please check this website www.forwellwireless.com.

CHAPTER 2 PRODUCT INTRODUCTION

R8 SERIES 3G ROUTER

WCDMA/EVDO/TD supported
Industrial quality
IPSec/PPTP/L2TP/GRE supported
"DeviceCloud" platform supported



This chapter mainly describes the function of R8 series and field of application.

1. *Brief Introduction to the Products*
2. *function features*
3. *application*
4. *Product model*

2.1 BRIEF INTRODUCTION TO THE PRODUCTS

With the development of the mobile communication technology, the mobile data communication network using the LTE/EVDO/TD-SCDMA/HSDPA/HSUPA has covered all regions in China. And the network is very stable. All these make a larger market for the R8 series application. Because different industries have different applications and different information needs, so the industry application solutions provided by the mobile communication operators must satisfy both the common needs and the special individual needs of the industry users perfectly. Therefore, in recent two years, based on the needs of industry users, Telecommunication, Mobile and Unicom do innovative practice energetically in mobile application and provide solutions to meet the unique needs of the users. Being different with the popular data requirements, industry application is very professional. Different industry users need different terminals. So hardware and software development and system integration must be accord with different

industry needs. So by analysing the different industry application features in recent years and according to the network features and the actual condition of the network operators, Forwell Wireless Ltd launched the individually designed R8 series.

R8 series developed by Forwell Wireless Ltd provide users the high-speed, always-online and transparent-data-transmission communication network. In order to meet the needs of Electronic Power System Automation, Industry Monitoring, Transportation Management, Weather, Environment Protection, Pipe Network Monitoring, Finance and Bond industries, by using 2G/3G/4G network R8 series achieve the transparent data transmission function.



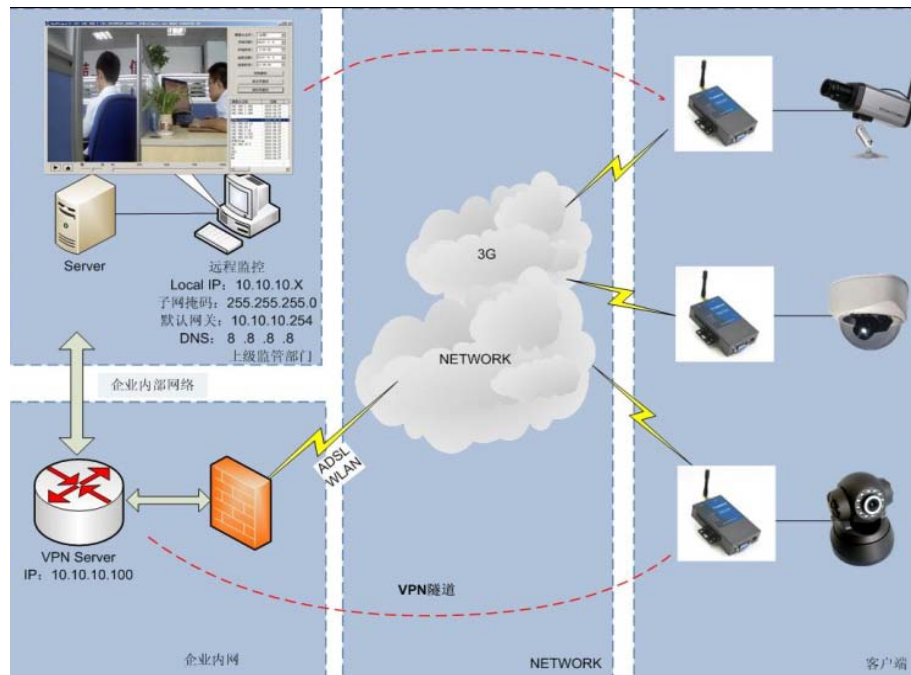
2.2 FUNCTION FEATURES

- Supports LTE EV-DO RevA/Rev0, 1xRTT, HSUPA, HSDPA, UMTS, EDGE & GPRS network
- 1 port 10/100 Ethernet LAN switch with LAN / DMZ configurable zones
- 3G module Built-in
- Support WiFi 802.11b/g/n
- RS-232 port offer a transparent channel for M2M application
- IPSec-based VPN client w/DES, 3DES, AES
- Stateful Packet Inspection Firewall

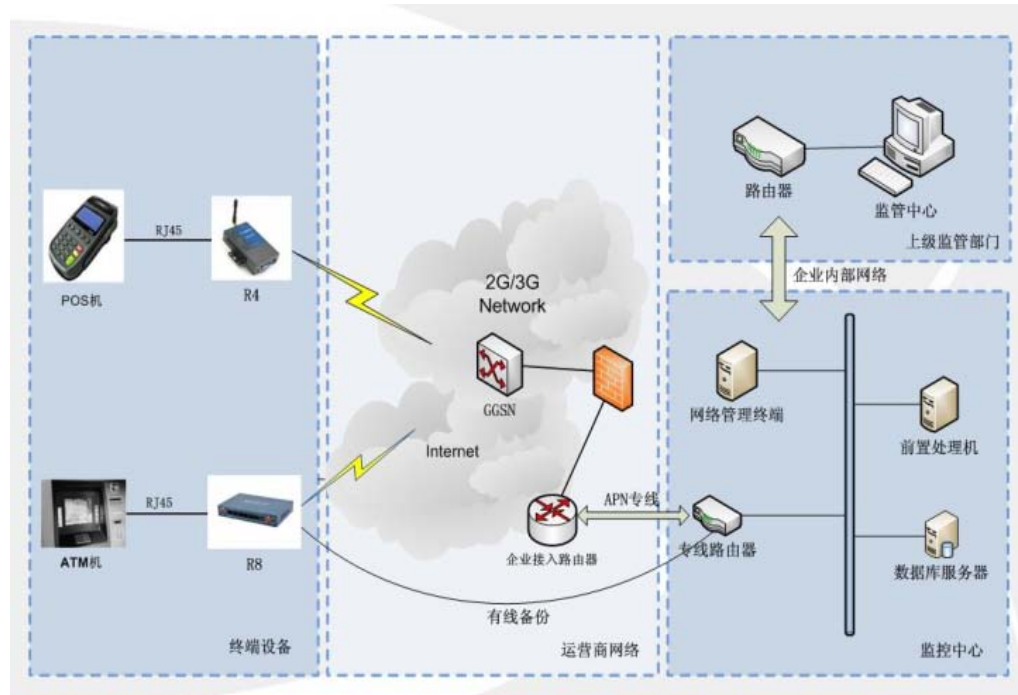
- Supports dynamic or static IP addresses assigned by cellular carriers
- Support APN/VPDN network

2.3 APPLICATION FIELDS

- Video Surveillance



- Financial Service(ATM&POS)



2.4 PRODUCT MODEL

R85 LTE Router

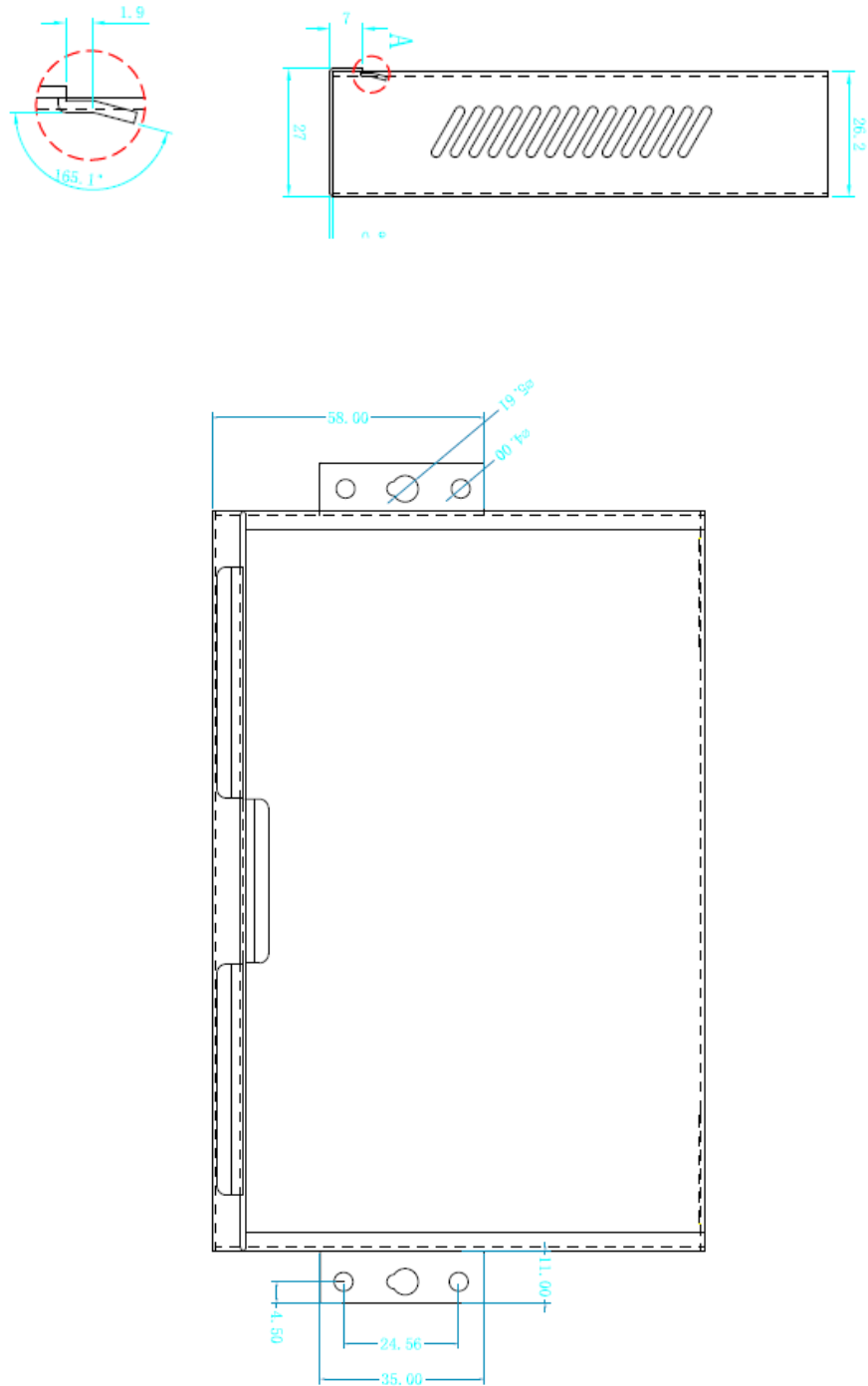
R89 HSUPA Router

R88 TDSCDMA Router

R87 HSDPA Router

R86 EVDO revA Router

R861Y232 EVDO revA Router



3.2 ACCESSORIES DESCRIPTION

3.3 INSTALLMENT

Name	Entire s	Quantit y	Describe	Pcture
Device	piece	1	Standar d	
Power	piece	1	12V1A	
antenna	piece	2	Standar d	
Network cable	bar	1	Standar d	
Usermanual	piece	1	Standar d	CD-ROM

R8 series should be installed and configured properly before putting in service. The installation and configuration should be done or supervised by a qualified engineer.

Attention:

Don't install R8 series or connect/disconnect its cable when it is powered on.

3.3.1 SIM/UIM CARD INSTALLED

Load or remove SIM/UIM card, need to have equipment back cover turned, up gently, gap outwards, broke it gets stuck under load, toward the chip can buckle up. Remove UIM card, SIM/broke it gets stuck, thrust the card can slip out.

Attention: *SIM/UIM card does not reach the designated position, the equipment can not find a card, can't work normally, therefore inserted a try to check again for a SIM card is stuck fast.*

3.3.2 GROUNDING

To ensure a safe ,stable and reliable R8 series operation,Router cabinet should be grounded properly.

3.3.3 CHECK NETWORK STATUS

Please connect the antenna after you successfully connect to the cable. And then insert the valid SIM/UIM card and provide the power to the R8 series via the cable. After provide the power to R8, if the POWER light start to blink in a few seconds, that means the system start-up is normal; if the 3G light works, that means the network has been found; if the VPN light works, that means VPN tunnel has been set up. Please refer to the below table for the situation of the indication lights.



LED	Indication Light	Description
POWER	On for 3 seconds	On for 3 seconds after power supply
	blink	System set-up normally
	Off or still on after 3 seconds	System set-up failure
Lan*4	blink	Data transmission in Ethernet
	Off	Ethernet connection abnormal
VPN	On	VPN tunnel set-up
	Off	VPN tunnel set-up failure
3G	On	Access to the Internet
WIFI	On	Enable
	Off	Disable

CHAPTER 4 SOFTWARE CONFIGURATION

1. *Overview*
2. *How to log into the Router*
3. *How to config web*

4.1 OVERVIEW

R8 series routers with built-in WEB interface configuration, management and debugging tools, user should configuration the parameters first;and it could be altered the parameters flexibility and software upgrades and simple testing. user can set up and manage the parameters of the router on its interface ,detail step as belows :.

4.2 HOW TO LOG INTO THE ROUTER

4.2.1 NETWORK CONFIGURATION OF THE COMPUTER.

The router default parameters as follow

IP: 10.10.10.254, sub mask: 255.255.255.0.

There are two ways to set the PC's IP address.

1. Manual setting
Set the PC IP as 10.10.10.xxx (xxx = 1~253), subnet mask: 255.255.255.0,
default gateway: 10.10.10.254, primary DNS: 10.10.10.254.
2. DHCP

Choose “Obtain an IP address automatically” and “Obtain DNS server address automatically”.

After IP setting, check it by ping. Click Windows start menu, run, execute “cmd” command. Input “ping 10.10.10.254” in the DOS window.

```
C:\>ping 10.10.10.254

Pinging 10.10.10.254 with 32 bytes of data:

Reply from 10.10.10.254: bytes=32 time<1ms TTL=64
Reply from 10.10.10.254: bytes=32 time<1ms TTL=64
Reply from 10.10.10.254: bytes=32 time<1ms TTL=64
Reply from 10.10.10.254: bytes=32 time<1ms TTL=64

Ping statistics for 10.10.10.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

This information means the connection is work.

```
C:\>ping 10.10.10.254

Pinging 10.10.10.254 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.10.10.254:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

This information means the connection is failure. If so, please check the network cable connection and IP address setting.

4.2.2 LOG INTO ROUTER

- Open the Web browser, and type <http://10.10.10.254> into the address field and press Enter button in your computer keyboard.
- Type User Name “admin” and Password “admin” in the pop-up Login Window, and then press the “Apply” button.



- If you type into the correct User Name and Password, you will get the access into the Router's Web Management Page.

[open all](#) | [close all](#)

- Cellular Router
- Internet
- VPN
- DHCP
- Wireless
- Firewall
- Administration

Access Point Status

Let's take a look at the status of Cellular Router.

System Info	
Software Version	3.8.7.4(SPI) (Aug 25 2014)
Hardware Version	4.0.0
Device ID	852180750395868
System Up Time	2 mins, 53 secs
Operation Mode	Gateway Mode

Cellular Info	
Module	HUAWEI-MU609
SIM Status	OK
Signal Strength	99,(0-31)
Attachment State	
IMSI	460001092519467
IMEI	357784045512157

Internet Configurations	
Connected Type	Cellular
WAN IP Address	10.73.131.21
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	120.196.165.7
Secondary Domain Name Server	221.179.38.7
MAC Address	00:00:00:00:00:00

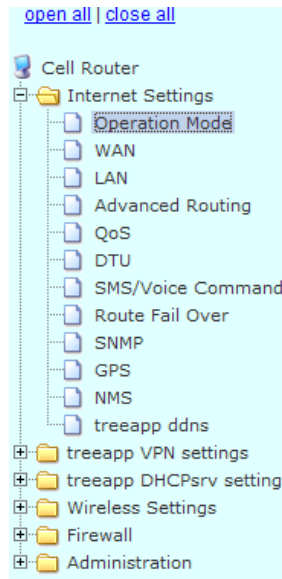
Local Network	
Local IP Address	10.10.10.254
Local Netmask	255.255.255.0
MAC Address	00:0D:01:D4:33:B7

NMS	
-----	--

4.3 CONFIG THROUGH WEB

4.3.1 INTERNET SETTINGS

4.3.1.1 OPERATION MODE



Operation Mode Configuration

You may configure the operation mode suitable for you environment.

- ☐ **Bridge:**
All ethernet and wireless interfaces are bridged into a single bridge interface.
- ☒ **Gateway:**
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- ☐ **AP Client:**
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

NAT Enabled Enable ▼

Apply

Cancel

- **Bridge:** All ethernet and wireless interfaces are bridged into a single bridge interface.
- **Gateway:** The first Ethernet port is treated as WAN port. The other Ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
- **AP Client:** The wireless interface is treated as WAN port and the wireless AP interface and the Ethernet ports are LAN ports.
- **NAT:** Network Address Translation

4.3.1.2 WAN SETTINGS

WAN Connection Type support: Static IP, DHCP, PPPoE, Cellular.

[open all](#) | [close all](#)

Cell Router

- Internet Settings
 - Operation Mode
 - WAN**
 - LAN
 - Advanced Routing
 - QoS
 - DTU
 - SMS/Voice Command
 - Route Fail Over
 - SNMP
 - GPS
 - NMS
 - treeapp ddns
- treeapp VPN settings
- treeapp DHCPsrv setting
- Wireless Settings
- Firewall
- Administration

WAN Connection Type: Cellular

Cell Mode	
APN Name	<input type="text"/>
Dialing Number	<input type="text" value="*99#"/>
network type	WCDMA PREFERRE
User Name	<input type="text"/>
Password	<input type="text"/>
Authenticate Type	AUTO
Initial Command String	<input \"cmnet\""="" ip\",="" type="text" value="AT+CGDCONT=1,\"/>
wan_3G_PIN	<input type="text"/>
MTU	<input type="text" value="1412"/>
Use Software Compress	<input type="checkbox"/> Enable
Operation Mode	Keep Alive
wan_icmp_check	<input type="checkbox"/>
wnetwork_check_target	<input type="text"/>
	<input type="text"/>
MAC Clone	
Enabled	Disable

Cell Mode

WAN Connection Type: Cellular

Cell Mode	
APN Name	<input type="text"/>
Dialing Number	*99#
network type	WCDMA PREFERRE
User Name	<input type="text"/>
Password	<input type="text"/>
Authenticate Type	AUTO
Initial Command String	AT+CGDCONT=1,"IP","cmnet"
wan_3G_PIN	<input type="text"/>
MTU	1412
Use Software Compress	<input type="checkbox"/> Enable
Operation Mode	Keep Alive
wan_icmp_check	<input type="checkbox"/>
wnetwork_check_target	<input type="text"/>
	<input type="text"/>

- **APN name:** you can get it from ISP.
- **Dialing Number:** Input the Dialing Number you get from ISP. For example, China Telecom (#777)
- **Network type:** you can choose right network here.
- **User Name:** you can get it from ISP.
- **Password:** you can get it from ISP.
- **Authenticate Type:** PAP/CHAP, the default setting is auto.
- **Initial Command String:** you need to input the username and password or APN offered by ISP with our Initial command:

Model	Network Type	AT Command	Note
R86	CDMA/EVDO	at^pppcfg=" username" ," password"	China Telecom
R89	WCDMA/TD-SCDMA/GPRS	at+cgdcont=1," IP" ," APN" ,	China Unicom CMCC

- **Wan_3G_PIN:** enter PIN code if necessary.
- **MTU:** Ethernet **1412 byte**; PPPoE (ADSL) : **1492 byte**

- **Operation Mode:** always online, connect on demand, connect on time. The default mode is always on line.
- **ICMP Detect:** you can open/close ICMP
- **Check_target:** you can enter IP address or domain name and it can be reach.

MAC Clone

MAC Clone	
Enabled	Disable ▼
<input type="button" value="Apply"/>	

Enable: enable and disable the MAC clone function.

4.3.1.3 LAN SETTINGS

Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup	
IP Address	10.10.10.254
Subnet Mask	255.255.255.0
LAN 2	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN2 IP Address	
LAN2 Subnet Mask	
MAC Address	00:0D:01:D4:33:B7
802.1d Spanning Tree	Disable ▼
LLTD	Disable ▼
UPNP	Disable ▼
DNS Proxy	Enable ▼
<input type="button" value="Apply"/>	

Setting the LAN parameters, You can modify the gateway IP address and subnet mask.

4.3.1.4 ADVANCED ROUTING

This section mainly introduce what is Routing Table and how to configure static router.

- New Static Router

This page is about how to set static routing function of the router.

Add a routing rule	
Destination	<input type="text"/>
Range	Host <input type="button" value="v"/>
Gateway	<input type="text"/>
Interface	LAN <input type="button" value="v"/> <input type="text"/>
Comment	<input type="text"/>

§ **Destination:** please enter Target Host or IP network segment

§ **Range:** Host or Network can be chosen

§ **Gateway:** IP address of the next router.

§ **Interface:** You can choose the corresponding interface type.

§ **Comment:** some notes

Notice:

- Gateway and LAN IP of this router must belong to the same network segment.
- If the destination IP address is the one of a host, and then the Subnet Mask must be 255.255.255.255.

- If the destination IP address is IP network segment, it must match with the Subnet Mask. For example, if the destination IP is 10.0.0.0, and the Subnet Mask is 255.0.0.0.
- **Routing Table**

This page shows the key routing table of this router.

Current Routing table in the system:									
No.	Destination	Netmask	Gateway	Flags	Metric	Ref	Use	Interface	Comment
1	255.255.255.255	255.255.255.255	0.0.0.0	5	0	0	0	LAN(br0)	
2	10.10.10.0	255.255.255.0	0.0.0.0	1	0	0	0	LAN(br0)	

4.3.1.5 QOS(QUALITY OF SERVICE)

QoS (Quality of Service) Service Quality, is one of the network security mechanism, is used to solve the network to delay and block of a kind of technology. In normal conditions, if the network only used for particular no time limit of application system, does not need QoS, such as the Web application, or E-mail setting, etc. But for critical applications and multimedia applications is very necessary. When the network overload or congestion, QoS can ensure that important business from delay or discarded, at the same time, to guarantee that the network of efficient operation.

The Quality of Service Setting:

The interface on a router, find QoS quality service set up options, the configurations. As shown in figure.

Quality of Service Settings

You may setup rules to provide Quality of Service guarantees for specific applications.

QoS Setup

Quality of Service	<div>Enable ▾</div>		
Upload Bandwidth:	<div>User defined ▾</div>	<div></div>	Bits/sec
Download Bandwidth:	<div>User defined ▾</div>	<div></div>	Bits/sec

Submit

First, choose open QoS function, the user can need according to custom upload bandwidth and download bandwidth, can also through the drop-down list to choose the appropriate bandwidth, and click submit.

IP Address	<div></div>
UploadBandwidth	<div></div> Bits/sec
DownloadBandwidth	<div></div> Bits/sec

Add

Then, the input to the speed limit of LAN IP address, fill out the upload bandwidth and descending bandwidth, it should be noted, fill in to pay attention to the Numbers behind the unit made clear, 10 K or 10 M, click the Add.

No	IP	UploadBandwidth	DownloadBandwidth
1 <input checked="" type="checkbox"/>	10.10.10.100	128K	1M

Delete

Finally, as you can see, just add IP information is in list directory, in Numbers and played the hook on set up a success.

pictorial view:

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Quality of Service Settings

You may setup rules to provide Quality of Service guarantees for specific applications.

QoS Setup

Quality of Service	Enable ▾		
Upload Bandwidth:	User defined ▾		Bits/sec
Download Bandwidth:	User defined ▾		Bits/sec

Submit

IP Address			
UploadBandwidth			Bits/sec
DownloadBandwidth			Bits/sec

Add

No	IP	UploadBandwidth	DownloadBandwidth
1 <input checked="" type="checkbox"/>	10.10.10.100	128K	1M

Delete

4.3.1.6 DTU SETTINGS

DTU Status	
dtu status	off ▼
DTU config	
link type	client ▼
network type	tcp ▼
server 1	<input checked="" type="checkbox"/> 10.10.10.100 : 5000
server 2	<input type="checkbox"/> 10.10.10.100 : 5001
server 3	<input type="checkbox"/> 10.10.10.100 : 5002
server 4	<input type="checkbox"/> 10.10.10.100 : 5003
heart beat interval	30 s (0 means disable)
heart beat infomation	hex <input type="checkbox"/> hello dtu!
off heart beat when no serial data	<input type="checkbox"/>
off heart beat delay time	40 s
send data timeout	50 ms (0~999)
send ID	<input type="checkbox"/>

Apply

This section is mainly about DTU settings.

- **DTU status:** open and close DTU
- **Link Type:** Server link or Client link can be chosen in the DTU config table. If use it as Server, we suggest you to use fixed IP of the SIM card.
- **Multiple-path Backup:** the router can support 4 Server IP at most to meet the need for multiple-path data backup.
- **Heart Beat function:** You can define heart beat time and heat beat information. So that Server can use the heart beat information to identify DTU.
- **Data content:** the largest package contents are 3KB. The interval between packets can be adjusted through change “send data timeout”.

4.3.1.7 SMS/VOICE COMMAND

SMS/Voice Settings

SMS/Voice Table	
SMS/Voice status	on ▼
Send response message	on ▼
Voice Command	3G Link Down ▼
Telephone Numbers	
Number 1	13688888888 <input checked="" type="checkbox"/> SMS
Number 2	<input type="text"/> <input type="checkbox"/> SMS
Number 3	<input type="text"/> <input type="checkbox"/> SMS
Number 4	<input type="text"/> <input type="checkbox"/> SMS
Number 5	<input type="text"/> <input type="checkbox"/> SMS
Number 6	<input type="text"/> <input type="checkbox"/> SMS
Number 7	<input type="text"/> <input type="checkbox"/> SMS
Number 8	<input type="text"/> <input type="checkbox"/> SMS
Number 9	<input type="text"/> <input type="checkbox"/> SMS
Number 10	<input type="text"/> <input type="checkbox"/> SMS
Message Command Settings	
3G Link-up Command	up
3G Link-down Command	down

Apply

This section is to introduce how to wake up the router from SMS or Voice.

- **SMS/Voice status:** open(on) or close(off) this function.
- **Send respond SMS:** When the router receive a message, it will reply one piece if you choose "on"..
- **Voice Command:** 4 choices(close, 3G link up, 3G link down, 3G link up or down); perform the corresponding action according to what you have

chosen. (Note:at present, Voice function do not support phone number filtering.)

- **Telephone Number Settings:** 10 numbers can be set at most, which you can send SMS from these phone numbers.
- **Command Settings:** Sending order by mobile phone can open “3G link up” and “3G link down”.



Note: SIM Card inserted in the router must support SMS or Voice.

4.3.1.8 DDNS

DDNS Settings	
Dynamic DNS Provider	<input type="text" value="Dyndns.org"/>
Account	<input type="text"/>
Password	<input type="password"/>
DDNS	<input type="text"/>

DDNS: support Dyndns.org/freedns.afraid.org/www.zoneedit.com/www.no-ip.com

4.3.1.9 GPS(OPTIONAL)

Due to different application requirements, R8 3G takes all these special requirements into consideration, so R8 3G provide you GPS service. Detailed settings as below:

GPS

GPS Settings	
Active	<input checked="" type="checkbox"/>
Custom Prefix	<forwell>
Custom Postfix	[forwell]
GPS Send to Serial	<input checked="" type="checkbox"/>
Transmission interval (0-999)	10 s
Comment: You need set serial port as the GPS purpose first before you start GPS function!	
GPS Send to Net	<input checked="" type="checkbox"/>
Transmission interval (0-999)	30 s
Socket Type	tcp
Server	dcm2m.f3322.org
Port	5000
GPS Send to Net	<input checked="" type="checkbox"/>
Transmission interval (0-999)	50 s
Socket Type	tcp
Server	10.10.81.150
Port	6000

Apply

- GPS Settings: 1.GPS Action:enable/disable
2.GPS Send to:Serial or TCP/IP
- Serial Settings: Please refer to -- 4.3.6.5
- GPS To TCP/IP Settings: 1.Socket Type:TCP/UDP
2.Server:Server IP address
3.Port:Server Port

4.3.1.10 SNMP

SNMP (Simple Network Management Protocol, Simple Network Management Protocol (SNMP) function support RFC1213 MIB library of standard basic query function, at the same time support the V2 SNMP Protocol version. You can customize the SNMP access port and configure the login password.

SNMP

Please restart system for changes to take effect

SNMP Settings	
SNMP Active	<input checked="" type="checkbox"/>
Contact Info	1234
Location	forwell
SNMP V1 and V2c Settings	
User	public
Host/Lan	0.0.0.0/0
Writable	<input checked="" type="checkbox"/>
SNMP V3 Settings	
User	public
Writable	<input checked="" type="checkbox"/>
Security Mode	<input type="radio"/> None <input type="radio"/> Authorized <input checked="" type="radio"/> Private
Authentication	<input checked="" type="radio"/> MD5 <input type="radio"/> SHA
Encryption	<input checked="" type="radio"/> DES <input type="radio"/> AES
Authentication Password	••••••
Encryption Password	••••••

Apply



Note: this function set up must restart to take effect.

4.3.1.11 FAILOVER

This function is applicable to automatic switching between wired and wireless.

Enable: check the checkbox, said to enable this feature.

Automatic switch: check the checkbox, according to the network priority setting, abnormal high priority link will automatically backup to the low priority network, if high priority during network after recovery, automatically switch back to the high priority network.

High priority setting: select a high-priority network.Said 3 g cellular network.

Detection of address: a reliable server IP address.

Route Failover

Before enabling this function, pls make sure that both WAN connections have access to internet!

Operation Mode	
Enable	<input checked="" type="checkbox"/>
Auto Switch	<input checked="" type="checkbox"/>
Route Priority	
High Priority	WAN (STATIC) ▼
Low Priority	Cellular ▼
IP address	8.8.8.8
	8.8.4.4

Apply



Testing address need to fill in 2 public IP address, Otherwise function switch will be abnormal. This function takes effect after restart.

4.3.2 VPN

4.3.2.1 IPSEC

IPSec VPN 列表							
编号	状态	链接状态	名称	服务模式	远程网关	本地IP地址	远程IP地址
1	<input checked="" type="checkbox"/>	Disabled	disconnected	test1	client	191.122.120.11	10.10.10.0

启用 停用 添加 编辑 删除

IPSec连接名	test1
服务模式	客户端
模式	Aggressive
远程 IPsec 网关	191.122.120.11
本地 IP 地址	Subnet
VPN IP 地址	10.10.10.0
IP 子网掩码	255.255.255.0
远程IP地址	Subnet
VPN IP地址	192.168.1.0
IP 子网掩码	255.255.255.0
Key Exchange 方法	Auto (IKE)
认证 方法	Pre-Shared Key
Pre-Shared 密钥	...
Perfect Forward Secrecy	停用
NAT Traversal	<input checked="" type="checkbox"/>
高级 IKE 设置	显示高级设置

确定 取消

- **IPsec connect name:** make sure the name in client and server are same, we suggest to use domain name(111.vpn1.com). if you want to build a point-to-point channel, the IPsec name have to be written as DEV+equipment ID+name(DEV281250D52F2A1452.vpn1.com), and make sure both the client and server are inputting Client equipment ID. You can find R8's ID in the Status interface.
- **Service Mode:** Server/Client
- **Mode:** Main/Aggressive. The Aggressive mode is commonly used.

- **Remote Gateway:** This choice just appears in the Client mode and it is used to fill the IP address in the Server.
- **Local IP address:** Fill LAN IP of this device. You can fill an IP or a network segment.
- **Remote IP address:** Fill the IP of the other router.
- **Authentication:** Commonly, Pre-Shared Key is chosen. And the Client and Server must choose the same key.
- **Advanced AKE settings:** There are some encryption methods in this field. You must use the settings in this field when VPN tunnel needs to be built between R8 and other brand VPN server.

4.3.2.2 L2TP

L2TP VPN 设置	
启动L2TP	<input checked="" type="checkbox"/>
链接状态	connected
L2TP 用户名	test1
L2TP 密码	●●●
L2TP 服务器	192.122.111.22
对方网段/掩码	192.168.1.0 / 255.255.255.0
本地 L2TP IP	动态IP <input type="button" value="v"/>
MPPE 加密	<input type="checkbox"/>

this function in the device just works as Client.

4.3.2.3 PPTP

PPTP

PPTP VPN 设置	
启动PPTP	<input checked="" type="checkbox"/>
链接状态	connected
PPTP 用户名	test1
PPTP 密码	●●●
PPTP 服务器	192.122.11.22
对方网段/掩码	192.168.1.0 / 255.255.255.0
本地 PPTP IP	动态IP <input type="button" value="v"/>
MPPE 加密	<input type="checkbox"/>

this function in the device just works as Client.

4.3.2.4 GRE

GRE 1

GRE VPN 设置	
启动 GRE VPN	<input checked="" type="checkbox"/>
链接状态	connected
GRE 名称 *	test1
远程网址 *	192.122.11.22
本机IP	10.10.10.0 / 255.255.255.0
本机内网网关 *	10.10.10.254
远程内网掩码 *	192.168.1.0 / 255.255.255.0
密码	●●●
MTU	1412

this function in the device just works as Client.

4.3.3 DHCP

4.3.3.1 DHCP CLIENTS

DHCP Clients			
Hostname	MAC Address	IP Address	Expires in
android-6a11a11	14:9F:E8:3E:63:80	10.10.10.100	00:00:00

List the Clients which gain IP address from DHCP .

4.3.3.2 DHCP SERVER

DHCP Server Setup	
DHCP Type	Server <input type="button" value="v"/>
Start IP Address	<input type="text" value="10.10.10.100"/>
End IP Address	<input type="text" value="10.10.10.200"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Primary DNS	<input type="text" value="10.10.10.251"/>
Secondary DNS	<input type="text" value="168.95.1.1"/>
Default Gateway	<input type="text" value="10.10.10.254"/>
Lease Time	<input type="text" value="86400"/>

You can configure the gateway, DNS server, start ip and end ip

4.3.3.3 IP/MAC BIND

MAC-IP Setup

MAC

IP

Apply

Cancel

MAC-IP List				
No	MAC	IP	Edit	Delete
1	00:F0:F3:B4:52:16	10.10.10.100	<div>Edit</div>	<div>Delete</div>

You can assign the very IP address for a dhcp client with designated MAC

4.3.4 WIRELESS

4.3.4.1 BASIC

Wireless Network	
Radio On/Off	<input type="button" value="RADIO OFF"/>
Network Mode	11b/g/n mixed mode ▾
Network Name(SSID)	Forwell <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID1	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID2	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID3	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID4	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID5	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID6	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Multiple SSID7	<input type="text"/> <input type="checkbox"/> Hidden <input type="checkbox"/> Isolated
Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
MBSSID AP Isolation	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
BSSID	00:10:18:01:05:34
Frequency (Channel)	2437MHz (Channel 6) ▾

The basic parameters of Wi-Fi setting.

The Radio function enable and disable.



The network mode supports 802.11 b/g/n (draft).

Support multi-SSID up to 8.

4.3.4.2 ADVANCED

Advanced Wireless Settings

Use the Advanced Setup page to make detailed settings for the Wireless. Advanced Setup includes items that are not available from the Basic Setup page, such as Beacon Interval, Control Tx Rates and Basic Data Rates.

Advanced Wireless	
BG Protection Mode	Auto 
Beacon Interval	100 ms (range 20 - 999, default 100)
Data Beacon Rate (DTIM)	1 ms (range 1 - 255, default 1)
Fragment Threshold	2346 (range 256 - 2346, default 2346)
RTS Threshold	2347 (range 1 - 2347, default 2347)
TX Power	100 (range 1 - 100, default 100)
Short Preamble	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Short Slot	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Tx Burst	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Pkt_Aggregate	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
IEEE 802.11H Support	<input type="radio"/> Enable <input checked="" type="radio"/> Disable (only in A band)
Country Code	None 

4.3.4.3 SECURITY

Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

Select SSID	
SSID choice	Cell-Router ▼
"Cell-Router"	
Security Mode	WPA2-PSK ▼
WPA	
WPA Algorithms	<input type="radio"/> TKIP <input checked="" type="radio"/> AES <input type="radio"/> TKIPAES
Pass Phrase	12345678
Key Renewal Interval	3600 Sec.
Access Policy	
Policy	Disable ▼
Add a station Mac:	
<input type="button" value="Apply"/>	

4.3.4.4 WDS

Wireless Distribution System Settings

Wireless Distribution System(WDS)	
WDS Mode	Disable ▼
<input type="button" value="Apply"/>	

4.3.4.5 WPS

You could setup security easily by choosing PIN or PBC method to do Wi-Fi Protected Setup.

WPS Config	
WPS:	Disable ▾
<div>Apply</div>	

4.3.4.6 STATION LIST

You could monitor stations which associated to this AP here.

Wireless Network							
MAC Address	Aid	PSM	MimoPS	MCS	BW	SGI	STBC

4.3.4.7 WIFIDOG

Before configuring wifidog, pls configure the wireless settings, especially the SSID. After enabling this function, you need to add new node at c.wifiap.cn.

WiFiDog Settings	
WiFiDog Enable	<input type="checkbox"/>
Machine ID	1f971417ed91ea8b6731f903b15d3096
Authentication Server	<div>c.wlanap.com</div>
<div>Apply</div>	

4.3.5 FIREWALL

4.3.5.1 MAC/IP/PORT FILTER SETTINGS

Basic Settings	
MAC/IP/Port Filtering	Disable ▾
Default Policy -- The packet that don't match with any rules would be:	Dropped ▾

Apply

Reset

MAC/IP/Port Filter Settings	
MAC address	<input type="text"/>
Dest IP Address	<input type="text"/>
Source IP Address	<input type="text"/>
Protocol	None ▾
Dest Port Range	<input type="text"/> - <input type="text"/>
Source Port Range	<input type="text"/> - <input type="text"/>
Action	Accept ▾
Comment	<input type="text"/>

(The maximum rule count is 32.)

Apply

Reset

Current MAC/IP/Port filtering rules in system:									
No.	MAC address	Dest IP Address	Source IP Address	Protocol	Dest Port Range	Source Port Range	Action	Comment	Pkt Cnt
Others would be dropped									-

Delete Selected

Reset

This section is mainly about MAC/IP/Port filter settings

- **Basic Settings:** Open the filter setting and set the filtering principle.
- **MAC address:** Fill the MAC address which needs to filter.
- **Destination IP:** IP of the target computer(the computer which the data packet will be sent to)
- **Destination Port Range:** port range of target computer
- **Source Port Range:** port range of the computer which sends data

4.3.5.2 PORT FORWARDING

Virtual Server Settings	
Virtual Server Settings	Enable ▾
IP Address	<input type="text"/>
Port Range	<input type="text"/> - <input type="text"/>
Protocol	TCP&UDP ▾
Comment	<input type="text"/>

(The maximum rule count is 32.)

Apply Reset

Current Virtual Servers in system:				
No.	IP Address	Port Range	Protocol	Comment
1 <input type="checkbox"/>	192.168.1.123	9000 - 9000	TCP + UDP	

Delete Selected Reset

Port forwarding is the process that your router or firewall uses to sort the right kind of network data to the right port. Computers and routers use ports as a way to organize network data. Different types of data, such as web sites, file downloads, and online games, are each assigned a port number. By using port forwarding, the router or firewall sends the correct data to the correct place.

- Virtual Server Settings: open and close Settings.
- IP address: fill the IP address of forwarding.
- PortRange: fill the Port of forwarding.

4.3.5.3 DMZ HOST

DMZ Settings	
DMZ Settings	Enable ▾
DMZ IP Address	<input type="text"/>

In computer networking, DMZ is a firewall configuration for securing local area networks (LANs).

- DMZ Settings: open and close Settings.
- DMZ host IP Address: Please Enter the IP address of the computer which you want to set as DMZ host

Note: When DMZ host is setted, the computer is completely exposed to the external network, the firewall will not influence this host.

4.3.5.4 SYSTEM SECURITY

Remote management	
Remote management (via WAN)	Allow ▾

Ping form WAN Filter	
Ping form WAN Filter	Disable ▾

Stateful Packet Inspection (SPI)	
SPI Firewall	Disable ▾

Include Remote management, Ping form WAN Filter and SPI (Stateful Packet Inspection).

4.3.6 ADMINISTRATION

4.3.6.1 MANAGEMENT

You may configure administrator account and password, NTP settings, and Dynamic DNS settings here.

Http Server Port (auto reboot after change)	<input type="text" value="80"/>
<input type="button" value="Apply"/>	

Language Settings	
Select Language	<input type="text" value="English"/>
<input type="button" value="Apply"/>	

Administrator Settings	
Account	<input type="text" value="admin"/>
Password	<input type="password" value="•••••"/>
<input type="button" value="Apply"/>	

NTP Settings	
Current Time	<input type="text" value="Sat Jan 1 02:25:40 UTC 20"/> <input type="button" value="Sync with host"/>
Time Zone:	<input type="text" value="(GMT+08:00) China Coast, Hong Kong"/>
NTP Server	<input type="text"/> ex: time.nist.gov ntp0.broad.mit.edu time.stdtime.gov.tw
NTP synchronization(hours)	<input type="text"/> Hour
<input type="button" value="Apply"/>	

- Http Server Port
- Select Language
- Administrator Settings. The default both are admin.
- NTP Settings

4.3.6.2 REBOOT SETTINGS

Reboot Settings

Reboot Timer Settings	
Reboot When Timeout	<input type="checkbox"/>
Timer (min)	1440 Min
<input type="button" value="Apply"/>	

Reboot System	
Reboot Now	<input type="button" value="Reboot"/>

ICMP check and Reboot Settings		
Reboot When Network Error	<input checked="" type="checkbox"/>	
Check Method(PING)	www.forwellwirel	<input type="button" value="check"/>
	www.baidu.com	<input type="button" value="check"/>
Check Interval Time(Sec)	60 (60-86400)	
Check Count	5 (3-1000)	
Reboot Count Before Sleep	3 (2-50)	
Sleep Time(min)	60 (10-43200)	
Comment: It is only used for 3G keep_alive and on_time mode,It is auto close in other mode!		
<input type="button" value="Apply"/>		

This function will detect the status of 3G by ping and complete the corresponding actions according to the ping result.

- Check the box, start the net detection restart function.
- Detection method (PING): fill the server domain name or IP, and then click the detection button, and detect if the fill-in is right.
- Detection interval time (second): the interval time between the first detection and the second detection is 60-86400 seconds.
- Detection counter: if you can't get the right result by ping when the detection frequency is the same as the fill-in times, the device will restart.
- Restart the counter before the detection function get into dormant state & detection function dormant time: this will protect the device against the damage caused by the continuous restarts, which are

caused by the ping failure by the result of the fault in filling the server domain name. After several times of restarts, the device will get into the dormant state. After that the detection will continue, and now the counter in flash will become zero and recount.

Note: This function will be only valid only in 3G permanent on-line and dialing according to the setting time, other states not. In setting, firstly you must detect if the filled-in server domain name or IP is valid.

4.3.6.3 UPGRADE FIRMWARE

The image shows two identical web interface sections. The top section is titled 'Update Firmware' and the bottom section is titled 'Update Bootloader'. Both sections have a 'Location:' label followed by a text input field and a '浏览...' (Browse...) button. Below each input field is an 'Apply' button.

Upgrade the firmware to obtain new functionality. It takes about 2 minutes.

4.3.6.4 SETTINGS MANAGEMENT

Export Settings	
Export Button	<input type="button" value="Export"/>

Import Settings	
Settings file location	<input type="text"/> <input type="button" value="浏览..."/>
<input type="button" value="Import"/> <input type="button" value="Cancel"/>	

Load Factory Defaults	
Load Default Button	<input type="button" value="Load Default"/>

Here you can make a backup of current settings or restore previous settings of the router .

- **Export settings:** click 'export' to export configuration files and then select save path.
- **Import settings:** click 'browse', select previous backup configuration files and then click 'Import'. Then all the previous settings will be recovered.
- **Load Factory Defaults:** click 'Load Default' then all settings will be restored to factory settings. This is not recommended in order to avoid the loss of important parameter

4.3.6.5 SERIAL

Serial Settings	
Serial Baudrate	115200 <input type="button" value="v"/> bps
Serial Parity	none <input type="button" value="v"/>
Serial Databits	8 <input type="button" value="v"/> bits
Serial Stopbits	1 <input type="button" value="v"/> bits
Serial Flow Control	none <input type="button" value="v"/>

Baudrate: support 4800/9600/19200/38400/57600/115200bps

Parity: support odd and even

Data bits: support 7~8 bits

Stop bits: support 1~2 bits

Flow Control: support hardware and software

4.3.6.6 STATUS

[open all](#) | [close all](#)

Cellular Router

- Internet
- VPN
- DHCP
- Wireless
- Firewall
- Administration

Access Point Status

Let's take a look at the status of Cellular Router.

System Info	
Software Version	3.8.7.4(SPI) (Aug 25 2014)
Hardware Version	4.0.0
Device ID	852180750395868
System Up Time	2 mins, 53 secs
Operation Mode	Gateway Mode

Cellular Info	
Module	HUAWEI-MU609
SIM Status	OK
Signal Strength	99,(0-31)
Attachment State	
IMSI	460001092519467
IMEI	357784045512157

Internet Configurations	
Connected Type	Cellular
WAN IP Address	10.73.131.21
Subnet Mask	255.255.255.255
Default Gateway	10.64.64.64
Primary Domain Name Server	120.196.165.7
Secondary Domain Name Server	221.179.38.7
MAC Address	00:00:00:00:00:00

Local Network	
Local IP Address	10.10.10.254
Local Netmask	255.255.255.0
MAC Address	00:0D:01:D4:33:B7

NMS

From the this page you can see the Router's basic running state.

- Product Model
- **Software Version:** software version reveals the status of software update.

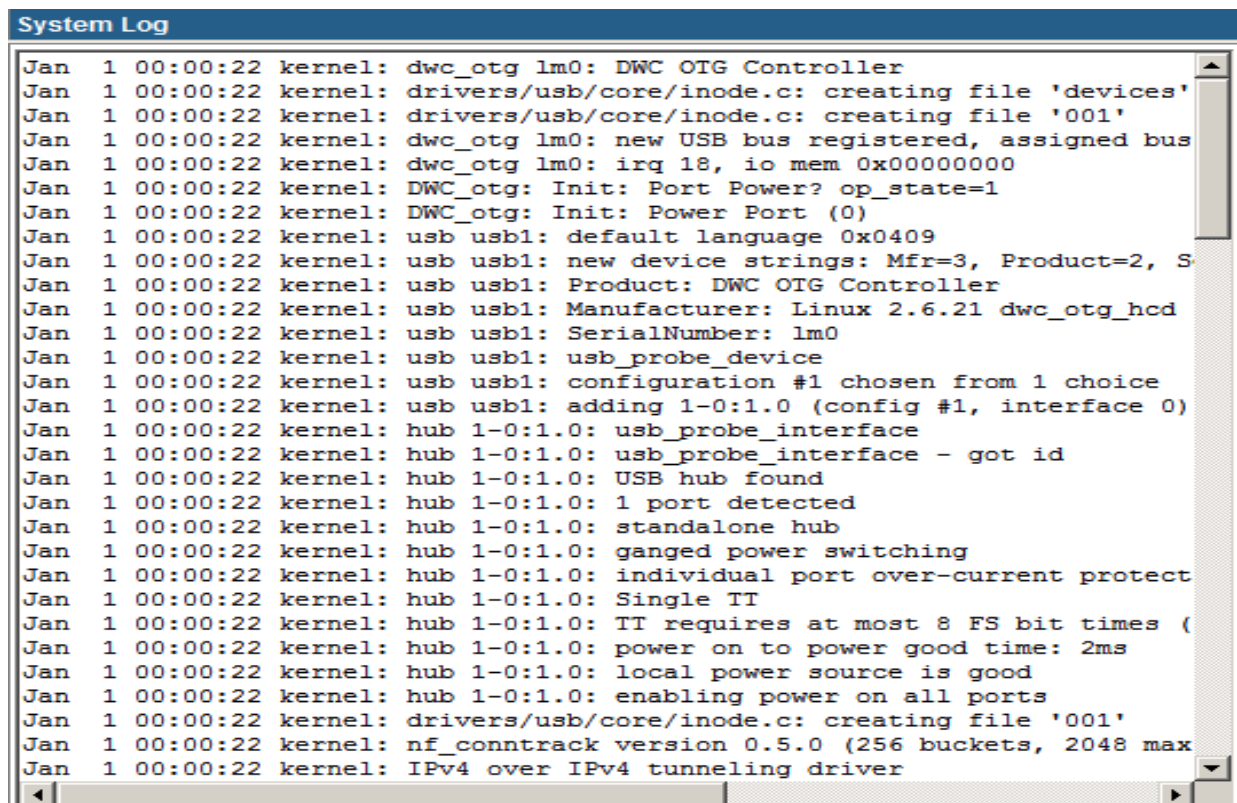
- **Hardware Version:** 1.0.0
- **Device ID:** every device has a unique ID, which has two functions:
1, it is manageable; 2, it allows to use point to point in VPN.
- **System Uptime:** this time directly reveals router working hours.
- **Signal Strength:** reveals the current network state of 2G/3G. 0 and 99 mean no signal.
- **Attachment state:** displays the current network attachment state, which can be set by users.
- **WPN IP address:** the IP expose when the router gets on internet.

4.3.6.7 STATISTICS

WAN/LAN	
WAN Rx packets:	0
WAN Rx bytes:	0
WAN Tx packets:	18
WAN Tx bytes:	1476
LAN Rx packets:	1063
LAN Rx bytes:	100996
LAN Tx packets:	572
LAN Tx bytes:	440808

Display the statistics information of system flow.

4.3.6.8 SYSTEM LOG

A screenshot of a 'System Log' window. The window has a title bar 'System Log' and a scrollable text area. The text area contains a list of kernel log messages, each starting with a date and time 'Jan 1 00:00:22' followed by 'kernel:' and a message. The messages describe the initialization of the DWC OTG Controller, the creation of USB device files, the registration of a new USB bus, and the detection of a USB hub. The log ends with the initialization of the IPv4 over IPv4 tunneling driver.

```
Jan 1 00:00:22 kernel: dwc_otg lm0: DWC OTG Controller
Jan 1 00:00:22 kernel: drivers/usb/core/inode.c: creating file 'devices'
Jan 1 00:00:22 kernel: drivers/usb/core/inode.c: creating file '001'
Jan 1 00:00:22 kernel: dwc_otg lm0: new USB bus registered, assigned bus
Jan 1 00:00:22 kernel: dwc_otg lm0: irq 18, io mem 0x00000000
Jan 1 00:00:22 kernel: DWC_otg: Init: Port Power? op_state=1
Jan 1 00:00:22 kernel: DWC_otg: Init: Power Port (0)
Jan 1 00:00:22 kernel: usb usb1: default language 0x0409
Jan 1 00:00:22 kernel: usb usb1: new device strings: Mfr=3, Product=2, S
Jan 1 00:00:22 kernel: usb usb1: Product: DWC OTG Controller
Jan 1 00:00:22 kernel: usb usb1: Manufacturer: Linux 2.6.21 dwc_otg_hcd
Jan 1 00:00:22 kernel: usb usb1: SerialNumber: lm0
Jan 1 00:00:22 kernel: usb usb1: usb_probe_device
Jan 1 00:00:22 kernel: usb usb1: configuration #1 chosen from 1 choice
Jan 1 00:00:22 kernel: usb usb1: adding 1-0:1.0 (config #1, interface 0)
Jan 1 00:00:22 kernel: hub 1-0:1.0: usb_probe_interface
Jan 1 00:00:22 kernel: hub 1-0:1.0: usb_probe_interface - got id
Jan 1 00:00:22 kernel: hub 1-0:1.0: USB hub found
Jan 1 00:00:22 kernel: hub 1-0:1.0: 1 port detected
Jan 1 00:00:22 kernel: hub 1-0:1.0: standalone hub
Jan 1 00:00:22 kernel: hub 1-0:1.0: ganged power switching
Jan 1 00:00:22 kernel: hub 1-0:1.0: individual port over-current protect
Jan 1 00:00:22 kernel: hub 1-0:1.0: Single TT
Jan 1 00:00:22 kernel: hub 1-0:1.0: TT requires at most 8 FS bit times (
Jan 1 00:00:22 kernel: hub 1-0:1.0: power on to power good time: 2ms
Jan 1 00:00:22 kernel: hub 1-0:1.0: local power source is good
Jan 1 00:00:22 kernel: hub 1-0:1.0: enabling power on all ports
Jan 1 00:00:22 kernel: drivers/usb/core/inode.c: creating file '001'
Jan 1 00:00:22 kernel: nf_conntrack version 0.5.0 (256 buckets, 2048 max
Jan 1 00:00:22 kernel: IPv4 over IPv4 tunneling driver
```

From the system log you can read the various situations after the system starts.